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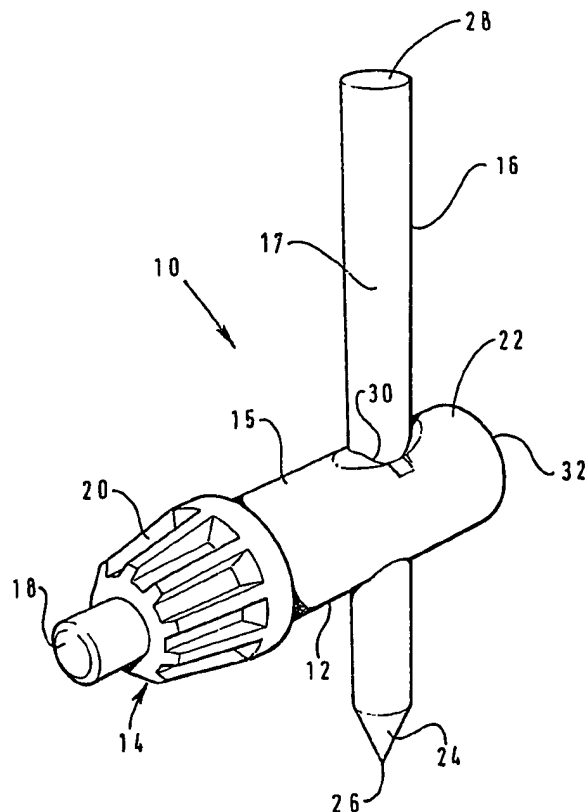
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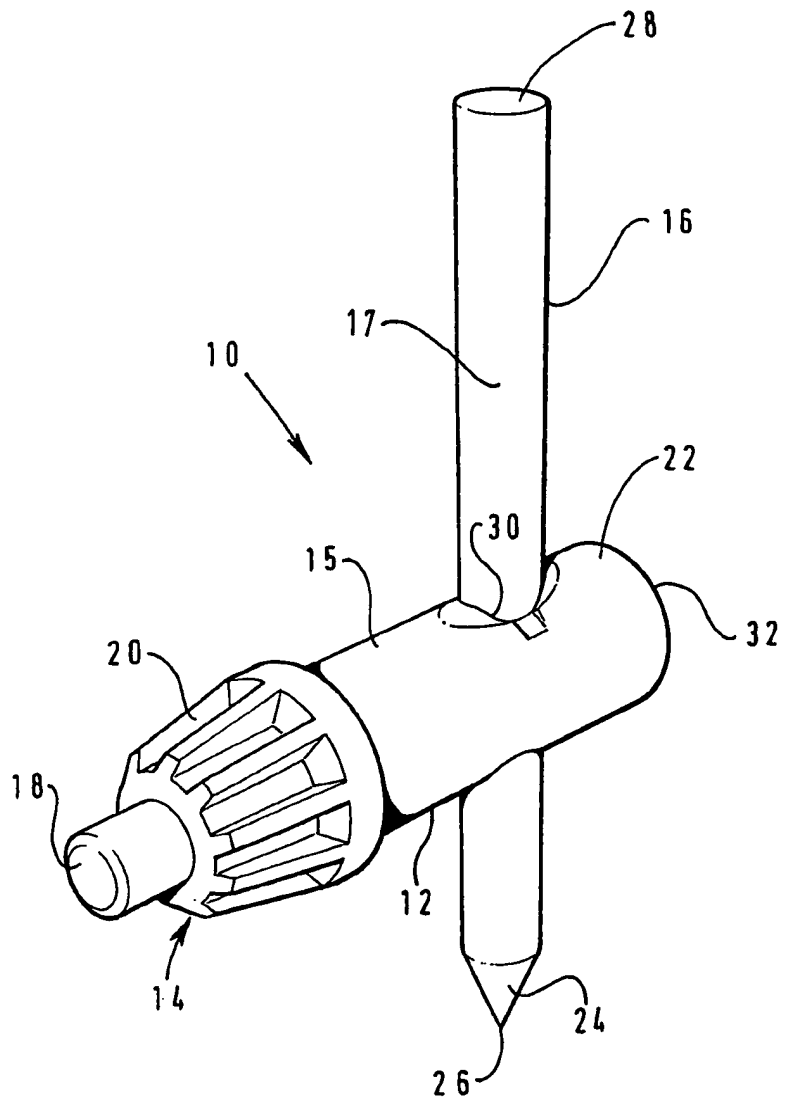
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(54) **Tool for use as a chuck key or  
centre punch**

(57) A tool (10) comprises a main body (12) including a drive portion (14) engagable with a chuck of a drill to operate the chuck, and a shank (15), having a bore (30) in which a cross-bar (16) is received, the cross-bar (16) being provided at its opposite ends with a hardened point (26) and a head portion (28) respectively. The tool (10) is capable of serving a dual purpose, either as a "chuck key" in which the drive portion (14) is operatively engaged with a chuck, and the cross-bar (16) is used to apply leverage, or as "centre punch" wherein force of an impact on the head portion (28) may be transmitted to the point 26 to form an indentation in an object. If desired a head portion and point could be provided at opposite ends of the main body (12).



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## SPECIFICATION

## Tool for use in a drilling operation

5 *Description of invention*

This invention relates to a tool intended primarily, but not exclusively, for facilitating the carrying out of a drilling operation.

Conventionally, when it is desired to drill a hole in an object, it is convenient first to form an indentation in the object at the desired centre for the hole, which indentation may serve to centre and guide the tip of a drill bit during commencement of drilling of the hole, so as to ensure that the hole is drilled in the correct place on the object. Conventionally, such an indentation is produced using a conventional hand tool known as a "centre punch".

Conventionally, drills are adapted to be usable with a variety of drill bits or other accessories each of which may be held captive in a portion of a drill known as a "chuck". A "chuck key" is often required to operate the chuck. Conventionally, a chuck key is provided with a drive portion engagable with the chuck, and a handle to enable leverage to be applied. It is an object of the invention to provide a new or improved tool.

According to a first aspect of the invention, we provide a tool comprising a drive portion engagable with a chuck of a drill to operate the chuck, a point, and a head portion from which force of an impact may be transmitted to the point.

In this manner, the tool is capable of serving a dual purpose, i.e. either as a "chuck key" or as a "centre punch".

Preferably the head portion and the point are provided at opposite ends of a part of the tool.

The drive portion may be provided by a body part of the tool, a shank extending from the drive portion.

Preferably the tool has a handle and the point and head portion are provided on opposite ends of the handle.

The shank may be engaged by a cross-bar constituting said handle.

The drive portion may comprise a conventional toothed pinion and an axial protrusion therefrom, protruding in a direction away from the shank portion. In use, such a protrusion is receivable in a bore (a "key hole") in a primary sleeve part of the chuck, and the teeth of the pinion are engagable with teeth of a continuous annular rack provided on an edge of an outer sleeve part of the chuck, such that rotation of the tool about an axis defined by said bore and said protrusion may drive rotation of the outer sleeve part about the primary sleeve part.

The cross-bar may be formed from a harder metal or other material, at least in the vicinity of the point, than would be used for a conventional cross-bar of a chuck key.

The cross-bar may be movable, for example linearly and/or rotatably slidable, in a bore in the shank, or may be firmly retained therein.

Where the cross-bar is so retained, it is preferably disposed asymmetrically with respect to the main body, the point preferably then being provided on the end of the cross-bar closer to the main body.

In this manner, optimum accuracy of positioning of the point against an object may be achieved, prior to striking of the head portion.

Alternatively or additionally, if desired, the point and the head portion may be provided at opposite ends of the body part.

According to a second aspect of the invention, we provide a chuck key having a cross-bar adapted for use as a centre punch.

The cross-bar may comprise a shank, a point at one end of the shank, and a head portion at the other end of the shank.

When using a tool in accordance with the invention as a centre punch, if desired the tool may be held other than by the part provided with the head portion and the point, generally at a location laterally displaced from the head portion, thereby lessening risk of accidental striking of a thumb or finger while attempting to strike the head portion.

According to a third aspect of the invention, we provide a tool comprising a shank having at one end a point and at the other end a head portion from which force of an impact may be transmitted to the point of the tool, means extending laterally from the shank to facilitate holding of the tool during impact.

In this manner, by holding the tool by said means during impact when using the tool as a centre punch, a user is less likely to strike a finger or a thumb while attempting to strike the head portion.

Preferably said means extending laterally from the shank comprises a drive portion of a tool in accordance with the first aspect of the invention.

One embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawing, which is a perspective view of a tool in accordance with the invention.

A hand tool 10 in accordance with the invention comprises a body 12 having at one end a drive portion 14 comprising an axial protrusion 18 and a toothed pinion 20 adjacent thereto. The body 12 further comprises a shank 15, having a bore 30 in which an elongate handle in the form of a cross-bar 16 is captive so as to extend through the shank 15.

The tool 10 may be used as a "chuck key", for causing relative movement between two sleeve parts of a chuck (not shown) of a drill, for example a power drill, in order to vary the tightness of grip of jaw parts of the chuck on a drill bit (or other accessory) engaged by the jaw parts. Such sleeve parts generally comprise a primary sleeve part surrounding the jaw parts and with which the protrusion 18 may be engaged, and an outer sleeve part having, on an edge thereof, a continuous annular toothed rack with which the toothed pinion 20 may simultaneously be engaged. Leverage may then be applied via the cross-bar 16, so that the outer sleeve part is driven, in a rack-and-pinion manner, around the primary sleeve, so as to vary the grip of the jaw parts, so enabling the jaw parts to be tightened to a greater extent than would be possible without using a chuck key by virtue of the cross-bar 16 having a length greater than the size of the drive portion 14. The tool 10 may also be used to release such tight grip after drilling of a hole.

The cross-bar 16 is formed from hardened steel

and is firmly retained, via its shank 17, in the body 12 in an asymmetrical manner, but could alternatively be slidably or interchangeably retained. The end of the cross-bar 16 closest to the body 12 comprises a portion 24, having a sharp point 26, and the opposite end of the part 16 provides a head portion 28, such that the tool 10 may also be used as a "centre punch", for example by holding the tool 10 by the portion 14 and/or the shank 15, positioning the point 26 against an object, and striking the head portion 28 in a direction towards the point 26, for example using a hammer, so that the point 26 indents the object.

The indentation so produced may act as a "centre" for guiding a drill bit during commencement of a drilling operation.

By holding the tool 10 by the portion 14 and/or the shank 15 when using it as a centre punch, thumbs or fingers of a user are laterally displaced from the head portion 28 struck by the hammer, so lessening risk of accidental injury, which is itself an improvement over conventional centre punches.

Although the point 26 has been described as being provided on the portion 24 located on the end of the part 16 closest to the body 12, which facilitates accurate positioning of the point 26 against an object, such a point could alternatively be provided on the opposite end of the part 16, a head portion then being provided on the end closest to the body 12, although such an alternative arrangement could render it more difficult to hold the tool 10 accurately in position prior to punching.

Alternatively or additionally, such a point may be provided on the protrusion 18, such that the end 32 of the body 12 opposite the protrusion 18 may then serve as a head portion for use of the tool as a centre punch. A point could instead be provided on the end portion 22, although this would be less desirable since it would necessitate direct striking of the drive portion 14 by an implement such as a hammer, which could damage the drive portion 14, to the detriment of use of the tool 10 as a chuck key.

Although, in the illustrated embodiment, the body 12 extending laterally from the shank 17 is a part of a chuck key, it will be appreciated that, if desired, a tool in accordance with the third aspect of the invention may have laterally extending means other than a portion of a chuck key.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

#### CLAIMS

1. A tool comprising a drive portion engagable with a chuck of a drill to operate the chuck, a point, and a head portion from which force of an impact may be transmitted to the point.
2. A tool according to Claim 1 wherein the head portion and the point are provided at opposite ends

of a part of the tool.

3. A tool according to Claim 2 wherein the tool has a handle and the point and the head portion are provided on opposite ends of the handle.

4. A tool according to Claim 3 comprising a body part provided at or adjacent one end thereof with the drive portion and having a shank extending to the other end of the body part, the shank being engaged by a cross-bar constituting said handle.

5. A tool according to Claim 4 wherein the cross-bar is formed from a harder metal or other material, at least in the vicinity of the point, than would be used for conventional cross-bar of a chuck key.

6. A tool according to Claim 4 or Claim 5 wherein the cross-bar is movable in a bore in the shank.

7. A tool according to Claim 4 or Claim 5 wherein the cross-bar is firmly retained in a bore in the shank and is disposed asymmetrically with respect to the main body, the point being provided on the end of the cross-bar closer to the main body.

8. A tool according to Claim 2 comprising a body part provided at or adjacent one end thereof with the drive portion and having a shank extending to the other end of the body part, the point and the head portion being provided at opposite ends of the body part.

9. A chuck key having a cross-bar adapted for use as a centre punch.

10. A tool comprising a shank having at one end a point and at the other end a head portion from which force of an impact may be transmitted to the point of the tool, means extending laterally from the shank to facilitate holding of the tool during impact.

11. A chuck key according to Claim 9 wherein the cross-bar comprises a shank, a point at one end of the shank, and a head portion at the other end of the shank.

12. A tool according to Claim 10 wherein said means extending laterally from the shank comprises a drive portion of a tool in accordance with any one of Claims 1 to 8.

13. A tool substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawing.

14. A chuck key substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawing.

15. Any novel feature or novel combination of features described herein and/or illustrated in the accompanying drawing.